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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/057,455 04/09/98 HAMADA

T 19680-01

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EXAMINER

BERMAN, J

ART UNIT

PAPER NUMBER

2878

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/057,455

Applicant(s)
Hamada

Examiner
Jack I. Berman

Group Art Unit
2878



☐ Responsive to communication(s) filed on _____

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-12 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-12 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Munakata in view of Kato et al. and Ichihashi et al.. Munakata discloses a method and apparatus for generating an image of a specimen comprising a voltage applying means 15 which applies a voltage to a sample 6 while an electron beam 16 is scanned across the sample and the resultant current induced in the sample by the electron beam is detected and correlated with the position of the electron beam to generate an image of the sample. Kato et al. teaches that such apparatus can be used to measure distances between points on the sample. One of the measurement methods taught by Kato et al., as summarized at lines 26-30 in column 2, involves determining the position of a mark on the sample image by measuring the delay between a beam scanning start time and the time at which the scanning electron beam reaches the position represented by the mark. According to Kato et al., the size of any given feature on the specimen can be measured by making a mark on opposing edges of the feature and measuring the distance between the two marks. Ichihashi et al. teaches that instead of the operator arbitrarily choosing two marks to indicate a distance to be measured, means can be provided to select the opposing edges by detecting the changes in the signals generated by the interaction of the electron beam and the specimen. While both Kato et al. and Ichihashi et al. illustrate embodiments of their inventions wherein either secondary or

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reflected electrons are detected, both patents state (Kato et al. at lines 11-20 in column 1 and Ichihashi et al. at lines 5-8 in column 3) that any signal generated by the interaction of the electron beam and the specimen can be used. Munakata teaches at lines 27-32 in column 1, that specimen currents are known in the art to be equivalent to back-scattered or secondary electrons for purposes of detection in scanning electron microscopes to indicate the interaction of an electron beam with a specimen. It would therefore have been obvious to a person having ordinary skill in the art to use Kato et al.'s measuring system to measure distances between points observed using the Munakata scanning electron microscope with changes in the detected signals being used to indicate the points to be measured, in the manner taught by Ichihashi et al..

Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Munakata, Kato et al., and Ichihashi et al. as applied to claims 1-4 and 7-10 above, and further in view of Todokoro et al.. Todokoro et al. teaches at lines 56 in column 1 through 14 in column 2 that the presence of passivation layers on integrated circuits creates a capacitance which prevents the observation of DC voltages in the integrated circuits by scanning electron microscopes. According to Todokoro et al., the way to overcome this problem is to periodically vary the bias voltage applied to the integrated circuit sample. It would therefore have been obvious to a person having ordinary skill in the art to periodically vary the bias voltage applied to the sample in the Munakata/Kato et al./Ichihashi et al. method and apparatus discussed above in order to overcome the capacitance problem disclosed by Todokoro et al..

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Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Munakata, Kato et al., and Ichihashi et al. as applied to claims 1-4 and 7-10 above, and further in view of Migitaka et al.. Migitaka et al. teaches to improve the signal-to-noise ratio of a scanning electron microscope by detecting secondary electrons and reflected electrons as well as an absorption current and combining at least two of these signals. It would have been obvious to a person having ordinary skill in the art to provide means to detect secondary electrons and/or reflected electrons in the Munakata/Kato et al./Ichihashi et al. method and apparatus discussed above in order to improve the signal-to-noise ratio in the manner taught by Migitaka et al..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Jack Berman whose telephone number is (703) 308-4849.


Jack I. Berman
Primary Examiner

jb

September 30, 1999